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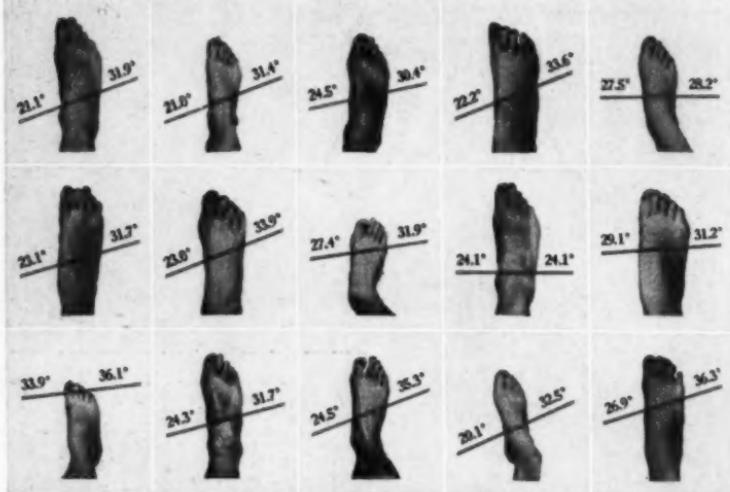
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1. Ready, W. J.: *J. of Lab. & Clin. Med.* 37:366 (March) 1951.

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## EDITORIAL

### Noise

By

FREDERIC R. STEARNS, M.D.

*Editor*

It is due to the changing environmental conditions that problems which have been considered minor ones two or three decades ago have now grown in importance and are worth closer attention on the part of the general practitioner. One of these problems is the impact of noise on the health of the individual. The increase in number of automotive vehicles of all kinds, of airplanes, of factories within or in the neighborhood of towns, of radio and television, of the many mechanical household and yard devices and so on, have augmented the noise in our communities to a degree which was not experienced 20 or 30 years ago.

Consistent investigations as to the possible damage to the human organism caused by noise have been done mostly by industrial physicians. We shall take their findings as a starting point for this exposition. The definition of noise, scientifically, is not easy. M. Saltzman (Clinical Audiology, Grune & Stratton, N. Y., 1949) defines sounds, which are discordant, and which possess no definite pitch, as noise. The ambient noise in the average home or office is of low pitch, while in a public dining room with the radio playing, it is a higher pitch, and in the playroom of small children who are blowing whistles, it is still of a higher pitch. N. Canfield (Audiology, Chas. C. Thomas, Publisher, Springfield, Ill., 1949) defines noise in terms of decibels; he describes environmental noise below

80 decibels, which generally is not damaging, noise from 80 to 90 decibels, which is damaging for the susceptible individual, from 90 to 100 decibels, which is still more damaging and from 100 upward, which is apparently damaging for even a non-susceptible person. S. R. Morena (Mental Hygiene in Relation to Noise and Work, *Gaceta Médica de Mexico*, June 30, 1949) also emphasizes that noise intensity of 10 phones and over may cause permanent damage. Industrial physicians, of course, are chiefly concerned with hearing damage and deafness. Stacy R. Guild, in an excellent paper (Industrial Noise and Deafness, *Journal of Ins. Med.*, 2:32, 1950) stated that "the energy content of many industrial noises is from a hundred to a thousand billion times (110 to 120 decibels) as much as the minimum that is needed to stimulate" the acoustic nerve. He adds that it is, therefore, not surprising that the organ of the Corti, when grossly and repeatedly over-stimulated for long periods of times, becomes damaged beyond repair. Many of the hair cells which are supplied by the terminal nerve fibers of the 8th nerve disintegrate and disappear. This damage is the more serious as a destroyed hair cell cannot be replaced. Guild stresses that the safety zone for prevention of hearing damage is much lower than generally accepted; there are examples that deafness due to noise has occurred in working locations having sound levels as low as 75 to 80 decibels.

When this is so, it is obvious that not only noise in factories but environmental noise in general may

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be injurious to the organ of Corti and consequently may cause irreversible hearing damage.

Noise, however, has a much more extensive influence on the human organism than the possible impairments of hearing.

German investigators have proved that typists working in an ordinary room which "echoes" the noise of the typewriter show an increase in the basal metabolic rate of up to 71% over normal values; when the walls and ceilings are soundproof the increase of the BMR is only up to 52% and, at the same time, the work efficiency is improved by 43%. A number of clinicians, among them J. C. Meakins and R. M. Wilson (Heart, 7:17, 1918), have noticed abnormal rise in pulse rate and respiration rate in response to auditory stimuli. Increase in blood pressure readings also have been observed. This effect of auditory stimuli on the autonomic nervous system has been particularly stressed by D. B. Vinson (Dis. of the Nerv. Sys., 1:19, Jan., 1946) who points to the exaggerated response to sounds which may be described as a startle reaction; this emotional response is associated with increased sweating, flushing or blanching of the skin, coldness of hands and feet, dryness of the mouth and increased palpitation.

While it is a common experience that sudden noise or prolonged noises have emotional reactions which may appear as restlessness, irritability, diverted attention, diminished concentration, etc., there can be no doubt that these emotional disorders are only concomitants of organic disturbances in the central nervous system. In animal experiments it has been proved that audi-

tory stimuli may prompt convulsive seizures. Electroencephalographic studies in human beings also have furnished evidence that noises may cause dysrhythmia in brain potentials. That these observations are not just of theoretical significance is evidenced by the fact that a so-called musicogenic epilepsy has been reported in human beings (D. S. Shaw and D. Hill, Case of Musicogenic Epilepsy, *J. Neurol., Neurosurg. & Psychiat.*, 10:107, Aug. 1947; H. P. Stubbe Tegebjaerg, Musicogenic Epilepsy, *Acta Psychiat. et Neurol.* 24:679, 1949). These authors presented case histories in which increased blood pressure and heart rate was observed in individuals when listening to music. Different kinds of music were invariably followed by a convulsive fit within 5 minutes. The EEG showed that an epileptiform cortical discharge beginning 6 to 7 seconds after the clinical onset of the fit and consisting of spikes or slow potentials.

The systemic effects of noise on the human organism have not received as yet the attention which this increasingly important medical problem deserves. As it could be seen from this short and incomplete survey, the range of pathological reactions extends from the focal damage to the ear, through the more widespread abnormal response of the central nervous system to pathological signs of the cardiovascular system. It would be, indeed, an essential task for the general practitioner, who may observe the effect of environmental noise more frequently than any specialist, to contribute to the elucidation of this problem in the fields of etiology, diagnosis and, especially, prevention.

## ORIGINAL ARTICLES

### Constitution and Habitus

By JULIUS BAUER, M.D.

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The term "constitution" or "constitutional pathology" is not very popular in this country. There are several reasons. First of all, the definition of constitution is not as clear-cut as that of other common terms in medicine; it is not even unequivocal. As long as fever, alterations of the blood count or sedimentation velocity of the red blood cells and others are called "constitutional" instead of systemic manifestations of a disease this confusion will not disappear. Then the concept of constitution requires some abstract thinking rather than perception of material things with our senses, aided or not by facilities of a laboratory. Hence the common confusion of constitution with "Habitus," that is, the general make-up, the morphological appearance of an individual.

Many believe that the essential if not the only objective of constitutional pathology is the detection of relationships between the individual habitus, the proportions and measurements of the body, on the one hand, and the reactions of the individual to various stimuli, and particularly certain disease inclinations, on the other. They believe that constitutional pathology must find out as many details of the general make-up as possible that may correlate with a particular morbid predisposition.

The culmination of these attempts is George Draper's construction of

a peptic ulcer type, a gallbladder type, or a pernicious anemia type of habitus. Even fine details such as hand and nail shapes or the tooth pattern were included in the characteristics of such types. Psychologic features were added later to complete the picture of personality types with certain morbid predispositions.

This trend does not appeal to sound thinking of physicians. Rightfully they will respond with a smile to a story which appeared in a great daily newspaper in Los Angeles several years ago. "By making 60 measurements of your bones, hair, eyes, and so on, local scientists will tell you if you are capable of committing a murder, of becoming an Einstein or Hitler, or of being happy in a particular marriage. After 30 years of quiet research and studies of over 10,000 persons, a revolutionary test of personality, character and job fitness has been discovered that does not require test subjects to answer a single question. Basically, the test depends on the finding that a great number of inherited physical characteristics are linked inseparably from birth to certain powerful mental, moral and even artistic tendencies."

Only laymen, unrestricted by knowledge, will be impressed by such research. A good example of the arrogance of ignorance is offered by a "letter to the editor" in a recent issue of *Life Magazine*: "William H. Sheldon's brilliant research ("What Manner of Morph Are You?" *Life*, June 25) is one scientific answer to that idiotic Freudian mumbo jumbo."

If a machine does not work properly all of a sudden, the engineer

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is anxious to look for the cause of such a diminution of its efficiency not only outside but chiefly inside of the machine; he considers the material, the precision of the construction, the previous efficiency, the rate of wear and tear of the material. Why should it be different in a living machine whose function shows some kind of alteration? This holds true particularly if we realize that there exists only a limited number of artificial mechanical machines of the same type but of different material, different precision of their construction, and, therefore, different efficiency; that there are, however, innumerable varieties of living machines of the same type or, in other words, that the different substrata of diseases are as numerous as the individuals of the same species.

We see these individual differences in human beings in their general appearance, their faces, their hands, their gait, their voices, their handwriting. We know that we have to deal with a wide range of normal variability in the pulse rate, blood pressure, blood count, gastric acidity, etc. We are aware of the fact that these differences are chiefly produced by the infinite variety of chromosomal combinations which never are alike—except the identical chromosomal combination in identical twins.

Thus it is heredity, that is, the transmission of parental or ancestral characteristics or genes to the offspring which chiefly rules the individual variability and therefore the individually different reactivity of the substratum to alterations of any kind. It stands to reason that genes of their own are potential energies only, and that extrinsic, environmental factors such as food, temperature, light, physical exercise and

others are indispensable for their manifestation. Genes concerned with mental functions such as intelligence, memory, specific talents for music, art, linguistics or mathematics cannot exert their full power without the extrinsic influence of proper education and training.

Constitution means literally set together or composition. We define *individual constitution* as the sum total of a person's characteristics as they are potentially determined at the moment of fertilization and become more or less modified by environmental influences during a lifetime.

**HABITUS** is only a part of the constitutional set-up of a person. It is visible external expression but altered in various degree by external factors or by different disease processes.

It is evident that knowledge about constitution seems to be of little direct value to the practicing physician. It is of fundamental importance, however, to the one who attempts to understand etiology and pathogenesis of disease processes in general, and individual variations in their clinical manifestations, course and therapeutic response in particular. Unfortunately our medical students do not learn much about this basic science and the lack of this knowledge often enough becomes apparent in scientific medical publications, especially those concerned with endocrinological problems. Attention to constitutional factors is all the more imperative today when chronic degenerative diseases without obvious extrinsic etiology become priority problems of medical research.

As to the theoretical and indirect practical implications of the constitutional aspect in medicine the reader must be referred to a little

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monograph of the author.<sup>1</sup> *Habitus* as part of the individual constitution has always attracted the attention of physicians from a purely practical viewpoint. There is no doubt that a relationship between *habitus* and constitutional predisposition to certain diseases does exist. This is expressed by the old terms *habitus phthisicus*, *apoplecticus*, *arthriticus*. It is owing to a misunderstanding of the underlying biological principles, however, when Feigenbaum and Howard<sup>1</sup> complain of a the "erroneous perpetuation of a clinical impression, namely, that the anatomic *habitus* is one of the causes of disease." The anatomic *habitus* is merely the visible, external expression of certain genes simultaneously influencing internal structures and various reactions of the organism and creating thereby certain morbid predispositions. *Habitus* is never the cause of a disease, although *habitus* and constitutional predisposition to certain diseases may have a common root in particular genes. Therefore *habitus* may be an indicator of such a morbid predisposition.

It has been pointed out previously to what extent these relations had been overrated in the last quarter of the century, how far the respective investigators have overshot the aim. It is regrettable how much time and money has been and is still going to be spent for fruitless investigation of this sort. This trend has been castigated by no minor authority than the anthropologist Ch. Stockard.<sup>1</sup> The following paragraphs are intended to summarize the facts that may be considered as established from these investigations.

About 2500 years ago, Hippocrates distinguished a long, slender type,

and a short, big type of human beings. The need for particular terms to signify these two types of human beings arose from various concepts about their nature or from observed relationships of these types to special functional features and groups of diseases.

The *longitudinal type* has been denoted as follows: *habitus longilineus*, or slender, linear, *leptosome*, *stenoplastic*, *hypotonic*, *microsplanchnic*, *hypov vegetative*, *hyperontomorphic*, *ectomorphic*, *asthenic*, *phthisic type*.

The *lateral type* has been labeled as *habitus brevilineus* or *quadratus*, or *eurysome*, *euyplastic*, *hypertonic*, *megalsplanchnic*, *hypervegetative*, *hypot-o-ontomorphic*, *endomorphic*, *hypersthenic*, *pyknic*, *plethoric*, *arthritic*, *apoplectic type*.

There are, of course, no sharp border lines between these two types and the intermediate average may be termed *normotype*, and has also been called *mesoplastic*, *normosplanchnic*, *meso-ontomorphic*, or *mesomorphic*.

Occasionally some more specific classifications have been attempted, which, however, do not differ greatly from the three essential groups just mentioned. Sigaud,<sup>1</sup> for instance, distinguished four types of human beings: *typus respiratorius*, *cerebralis*, *muscularis*, and *digestivus*. The first two are only varieties of the longitudinal type. The digestive type corresponds to the lateral. Kretschmer's athletic type corresponds to Sigaud's muscular type, and both are varieties of the intermediate normotype, distinguished by a particularly well developed muscular system.

*Habitus* is not necessarily fixed throughout life, as some authorities believe. With increasing age the

chest assumes more or less the characteristics of the lateral type. The ribs and the diaphragm become more elevated, the epigastric angle more obtuse, and abdominal fat accumulation increases together with hypotonicity of the abdominal wall. Hence Sigaud's digestive type, which is virtually the lateral type, has been found to be more frequent among men of more advanced age than among those in the third decade.

In the *longitudinal type* the trunk is narrow, tapering to the waist, the epigastric angle is acute, the chest is long as compared with the abdomen, the neck is long and small in circumference, the extremities are long and slender, with long slender muscles and slender bones. There is scanty accumulation of adipose tissue. If the shape of the head accords with the general trend of the habitus—as is not always the case—the head is dolichocephalic, the face leptoprosopic—that is, its longitudinal measurements exceed the lateral to a greater degree than in the normotype. The interpupillary distance is short, the eyes are close together, the nose bridge is narrow, the lower jaw small and narrow. The longitudinal type may or may not be associated with muscular hypotonicity and weakness as well as with autonomic nervous imbalance. If so, the term *asthenic type* is appropriate.

The *lateral type* represents the antithesis of the longitudinal type in all the respects mentioned. The trunk is wide, the epigastric angle obtuse, the chest short as compared with the abdomen, the neck short and wide, the extremities relatively short and stocky, with thick bones. There is a tendency to accumulate relatively more adipose tissue as compared with the normotype or

head is usually brachycephalic, the face euryprosopic, that is, its lateral measurements are excessive as compared with the normotype or longitudinal type. The interpupillary distance is great, the eyes are far apart, the nose bridge is wide, the lower jaw is large.

As a matter of fact, the relative size, shape and position of the viscera are intimately correlated with the general make-up. In other words, a characteristic internal habitus, if we may use such a term, corresponds to the external one. It was first shown by Beneke<sup>1</sup> that in the longitudinal type the heart is relatively small, the arterial blood vessels narrow, the lungs large, the liver small, and the small intestines short, whereas the lateral type is possessed of a relatively large heart, wide arteries, short, small lungs, large liver, and long intestines. Of greater clinical importance is the knowledge that it is the longitudinal type in which fluoroscopic examination reveals a dropping heart, or at least a longitudinal heart shadow, and a long, narrow, vertical stomach extending far down in the abdomen. Contrariwise, we encounter a more transverse position of the heart, an elevated diaphragm, and an oblique situation of the stomach in the lateral type. The differences in the electrocardiograms of the two types resulting from the difference in position of the heart are self-evident.

We see and understand from this discussion that there are certain relationships between the general make-up of a person and some functional characteristics, both physical and mental.

Blood pressure, both systolic and diastolic, is *on an average* somewhat higher in the lateral than in the longitudinal type. Differences be-

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between the longitudinal and the lateral type have been found with regard to the functional behavior of the hemopoietic and the vasomotor system, the capillary permeability, respiration, and various metabolic functions. Such differences, however, exist only in relation to the average, that is, they are significant statistically, not individually. As far as a correlation between somatic type and mental attitude is concerned, no further discoveries have resulted since Kretschmer's time from extensive studies carried out along these lines by various authors. Longitudinal types are preferentially of *schizoid temperament* or introvert, lateral types are more frequently of *cycloid temperament* or extrovert. Hence the first group is more inclined to develop schizophrenic, the latter manic-depressive types of psychosis, if any. Attempts to correlate the habitus with certain mental characteristics such as intelligence, sociability, perserverance, emotional excitability did not reveal anything beyond Kretschmer's concept.

As to *morbid predisposition* of different habitus-types very little can be said to be proved. It is true that the *longitudinal (ectomorph) type* has been found more frequently in patients with progressive pulmonary tuberculosis. The *asthenic variety*, at least partially however, may be the result rather than the preexisting predisposing factor of tuberculosis ("habitus phthisicus"). According to S. A. Weisman,<sup>2</sup> a deep and narrow chest, that is, a relatively greater anteroposterior diameter and relatively smaller transverse diameter of the chest, "makes better soil for tuberculosis." Chronic rheumatoid arthritis is more often associated with a longitudinal habitus. It has been said that peptic

ulcer patients present more often the longitudinal type. This apparently greater frequency, however, was not found to be statistically significant.

The *lateral (endomorph) type* has been known for a long time to have a greater proclivity to gallstones. It is also more frequent in patients with osteoarthritis and those with prostatic hypertrophy. The advanced age of such patients, however, may contribute to the greater frequency of the lateral type.

The *normotype (mesomorph)*, usually of the muscular type variety, was found to suffer more often from myalgic and neuralgic pain, upper respiratory infections, nephritis and syphilitic aortitis.<sup>1</sup> Recent studies of a Harvard group,<sup>3</sup> showed that this type also has a predisposition to coronary disease. The coronary disease victims were shorter and wider, with increased anteroposterior chest diameter compared with a control group. They did not, however, weigh more on the average than those in the control group.

It is an often repeated truism that taking care of a patient consists of more than diagnosing and treating one or more of his organs whose structure or function is out of order; that it is necessary to take a holistic view and to know what is wrong with the whole person, physically and mentally, which is more than the simple sum of his organs. Attention concentrated on his constitution is indispensable for this purpose. The consideration of the patient's habitus is the easiest and first step to penetrate into the enigma of his personality.

How these fundamental principles of medical activity may be applied in the diagnosis and management of individual patients was tried to demonstrate in detail elsewhere.<sup>4</sup>

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## Tonsillectomy

### Indications and Contraindications

By MAURICE SALTZMAN, M.D.

Philadelphia, Pennsylvania

Focal infection has become a controversial subject in recent medical history. The tonsils have been the most frequent target. In the second decade of the Twentieth Century, tonsillectomy was the first step in the treatment of otosclerosis, glomerular nephritis, thrombosed varicose veins and rheumatic fever. Soon enough disappointments followed. The results were not invariably successful and serious consequences from the operation were rather frequent. Lung abscess was not uncommon and an occasional rheumatic child developed bacterial endocarditis. The realization that tonsillectomy deserves the respect of a major operation was brought home. Accordingly, in the light of our present knowledge, the main indication for tonsillectomy is that the presence of the tonsils in the throat constitutes a greater risk to life and health than the hazards of the surgical procedure. This would be the case if the tonsils were definitely infected, constituting a septic focus. The presence of a tumor in a tonsil constitutes an urgent indication for tonsillectomy. However, enucleation of

the tonsil with a malignant neoplasm is frequently precluded due to early involvement of the surrounding structures obliterating the line of cleavage. Then, the remaining avenue of therapy is radiation. In children, the tonsils may be large enough to approximate each other in the midline. When they become inflamed, difficulty arises in breathing and swallowing. The mechanical obstruction is dealt with most efficiently by surgery. Recurrent tonsillitis constitutes a menace to life and health as it is unpredictable what the next attack may bring. It is, therefore, wise to jump ahead and enucleate the tonsils before a grave complication arises. The occurrence of a peritonsillar abscess is due to the fact that the follicles, when they become infected, point into the tonsillar bed instead of towards the surface. The patient has a stormy time for a week or longer and usually requires one or more surgical treatments. He dreads the recurrence of the episode, which is bound to come, and he readily submits to the indicated operation—tonsillectomy.

An upper respiratory infection is the most important predisposing factor of acute otitis media. In children, a congestion or infection of the

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adenoids causes a blockage of the Eustachean tubes and inflammation of the middle ears. The presence of hypertrophied and infected tonsils favors a recurrence of acute otitis media or acute exacerbation of chronic otitis media, as such tonsils constitute a storagehouse of pyogenic bacteria in the immediate vicinity of the Eustachean tubes.

Diphtheria carriers had to have their tonsils removed in the past. With the effectiveness of penicillin, this indication would apply to carriers of resistant strains of diphtheria bacilli.

Tuberculous tonsillitis may be primary or secondary. The bovine type which is due to ingestion of infected food, while secondary tuberculous tonsillitis is occasionally a complication of the pulmonary infection and the causative agent is the human tubercle bacillus. As ulceration with secondary infection overtakes a tuberculous tonsil speedily, the tonsillectomy operation offers an opportunity of obviating this difficulty. At the present time, however, streptomycin and PAS may be given a chance first before resorting to surgery.

The recurrent enlargement of the anterior cervical glands calls for a complete blood count and an examination of the ears, nose, throat, teeth, nasopharynx and hypopharynx. If the tonsils are found to be infected, it is logical to infer that there is a close connection between the infected tonsils and the cervical adenitis, and tonsillectomy may be advised. In the event of an excessive enlargement of one tonsil and a greater degree of adenopathy on the corresponding side, the enucleated tonsil should be subjected to biopsy. In my experience, a focus of lymphosarcoma was found in the enucleated tonsil of a patient who pre-

sented unilateral enlargement of the glands and the tonsil.

Foul breath is an indication for tonsillectomy, sometimes. Odoriferous cheesy materials may be harbored in excessively large and deep crypts.

The contraindications to tonsillectomy may be classified as absolute and relative. Hemophilia is an absolute contraindication, whereas, microcytic hypochromic anemia necessitates preoperative blood transfusions to bring up the hemoglobin concentrative above 65%. In some cases, the oral administration of iron for a couple of weeks suffices to correct the anemia. Diabetes is a relative contraindication. The operation must be postponed until the patient is standardized on insulin. It is also desirable to enlist the aid of a specialist in diabetes who may share the responsibility in the management of the case. The same advice applies to tonsillectomies in patients with other serious ailments, such as tuberculosis, syphilis and heart disease. If the tonsils are a menace to health and must be removed, the patient is to be safeguarded by consultation with a specialist in the constitutional illness with which this particular individual is suffering.

The patient with valvular disease of the heart whether of congenital or rheumatic etiology, should be given daily injections of 300,000 units of aqueous penicillin for five days prior to tonsillectomy in order to safeguard him against bacterial endocarditis. A hypertensive individual, whose tonsils must be removed because of sepsis or tumor, should have bed rest and sedatives for a few days prior to the operation in order to reduce the blood pressure to a moderate level—170 systolic, or lower. Procaine infiltration, with-

out adrenalin, is the anaesthetic of choice.

Status lymphaticus is an absolute contraindication. This condition is frequently associated with persistent enlargement of the thymus in children. Operation under general anaesthesia carries the danger of sudden death. Occasionally, alarming phenomena appear during the induction of anaesthesia—such as convulsions or cardiac arrhythmia. Under these circumstances, the anaesthetic must be stopped and the operation must be cancelled.

The proper timing of the tonsillectomy operation obviates unnecessary hazards. It is unwise to perform the operation during the sum-

mer months when there is an increased incidence of poliomyelitis. Even if the surgeon believes that there is no connection between tonsil operation and polio, he will be condemned by the public if one of his patients would be stricken with infantile paralysis, by chance. Proper timing applies also to the length of time that must elapse after an attack of acute tonsillitis before the tonsillectomy operation may be performed. It must never be less than two weeks, but preferably one month. It is also contraindicated to operate soon after a systemic illness. Best results are obtained if the tonsillectomy is performed when the patient has regained his usual health.

## The Diagnosis and Treatment of Functional Uterine Bleeding

By GLENN W. BRYANT, M.D.

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Functional uterine bleeding is abnormal bleeding which occurs in the absence of pelvic pathology. It is due to a disturbance of physiology or to hormone dysfunction rather than to a pathological lesion. The diagnosis of functional uterine bleeding should be made only after the pathological causes of bleeding have been ruled out.

A brief outline of normal menstrual

function may help us understand some of the causes and methods of treatment of abnormal or functional uterine bleeding.

The anterior pituitary secretes a hormone called the follicle stimulating hormone (FSH) which causes growth and development of the follicles in the ovary. These follicles secrete a hormone, estrogen, which stimulates the endometrium of the uterus to grow. One of the follicles reaches maturity and ruptures from the ovary. Following ovulation, a second anterior pituitary hormone, the luteinizing hormone (LH) causes the follicular cells to develop

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into the corpus luteum. This body in turn secretes more estrogen and a second ovarian hormone, progesterone. The combination action of these hormones (estrogen and progesterone) causes further development of the endometrium and it becomes very thick and spongy and is designated secretory in type. The endometrium is ready for reception of a fertilized ovum. If the ovum is not fertilized, then the corpus luteum atrophies and the levels of the hormones (estrogen and progesterone) that it secretes fall. This fall is thought to initiate the bleeding phase of the menstrual cycle during which all except the most basal portion of the endometrium is shed. Then the process begins all over again and another menstrual cycle is on its way.

When abnormal uterine bleeding occurs in adolescence, it is functional in practically every case. Occasionally though, carcinoma of the cervix or a cervical polyp may occur in the teens and hence a complete examination, under anesthesia if necessary, should be carried out in every teen age girl who continues to have abnormal uterine bleeding.

During the child-bearing period such lesions as polyps, myomas, endometriosis, carcinoma, and chronic inflammatory disease must be considered and ruled out before making a diagnosis of functional bleeding. This usually can be done with a careful history and pelvic examination, with a diagnostic curettage in cases where there is any question of malignancy or endometrial polyp present. A biopsy of the endometrium obtained with a suction curet in the office will be most helpful in giving you a picture of the type of endometrium present and will make curettage unnecessary in some cases.

When a patient with abnormal bleeding, menorrhagia, metrorrhagia or a combination, has been subjected to careful history and pelvic examination and no evidence of pelvic pathology is found, then an endometrial biopsy should be done. The most information will be obtained if the biopsy is taken just before or early in a bleeding phase. A biopsy taken just after the bleeding phase is usually of little help. The endometrium frequently will be in proliferative stage and at least 30% of patients will have definite hyperplasia of the endometrium. We consider this latter condition due to hyperestrinism. Occasionally the endometrium will be atrophic and rarely a secretory type will be found. If the patient has secretory endometrium, we conclude that ovulation has occurred and the endometrium is showing evidence of stimulation by a combination of estrogen and progesterone. This is the normal sequence of events and makes an explanation of abnormal bleeding in these patients difficult.

Any bleeding after menopause is abnormal and since malignancy is responsible for 66% of all postmenopausal bleeding, great care should be taken in making a diagnosis of functional bleeding. Every patient in this age should have a thorough curettage carried out in the operating room and if the endometrium is benign and there are no polyps, myomas or other lesions present, then the bleeding can be labeled functional.

In the past decade with the widespread use of estrogens for treatment of menopausal syndrome, we have seen many postmenopausal patients whose bleeding is due to estrogenic stimulation. One of the first questions that a patient in this age

group should be asked, is, "Have you received any hormone for your menopausal symptoms?" Many times you can be reasonably sure the bleeding is due to estrogen withdrawal or break-through but only by curettage can you be absolutely sure that carcinoma is not present.

A patient's menstrual function is related to her general health, hence we want to be sure that her diet is adequate and that she does not have vitamin deficiency. Nevertheless, correction of dietary deficiencies alone will be insufficient for the majority of patients.

Blood dyscrasias are occasionally responsible for abnormal uterine bleeding, especially in the younger age group. A complete blood study in this group will rule in or out this diagnosis.

The treatment of functional bleeding in the adolescent group should begin with the administration of thyroid. A dose of 1-2 gr. daily is usually sufficient and will regulate many of these girls. If the bleeding continues to be excessive and evidence of anemia appears, then curettage should be carried out. This is curative at times with reversion to a normal cycle which prevails. The administration of iron and general supportive measures should be carried out, and time alone is a great factor in obtaining normal menstrual function. In the more severe cases, the cyclic administration of progesterone will usually relieve the excessive flow. It should be administered in doses of 25 mgms. every other day for 2-3 doses and repeated at 4 weeks intervals. This is especially indicated if the endometrium showed hyperplasia. Irradiation has no place in the treatment of this age group.

Patients in the childbearing group can be treated according to the type

of endometrium present. If hypertension is absent, then estrogens, either natural or synthetic, in equivalent doses of 1 mgm. daily can be administered for 21 days followed by a period of withdrawal bleeding. The hormone is repeated beginning on the fourth day of the bleeding phase and given again for 21 days. After treatment for 3-4 cycles, therapy is stopped and the patient tried on her own. Many will continue to have normal periods.

If hyperplasia is present, thyroid 1-3 gr. should be administered daily and the patient given progesterone 50-75 mgms. in divided doses intramuscularly. If therapy is started during a bleeding phase, the bleeding will cease, to be followed in 4-5 days by withdrawal bleeding. This usually lasts 4-5 days and then the patient will go for 2-4 weeks before bleeding recurs. The progesterone should be repeated in exactly 4 weeks from the time it was first given. Then the withdrawal bleeding will coincide with the expected mense.

Patients who do not respond to either of the above routines should have curettage. Should their bleeding then recur and especially those thirty-five or older, hysterectomy is the treatment of choice.

In the past many patients thirty-five or above with functional bleeding were treated with radium. Now we feel that radium and x-ray should be reserved for patients with malignancy and if the bleeding cannot be controlled with medical therapy, then hysterectomy, conserving ovarian tissue is the treatment of choice.

The treatment of postmenopausal bleeding should begin with curettage. If malignancy is found, then the patient should receive adequate therapy for that particular lesion present. If the endometrium shows

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hyperplasia and especially if estrogens have previously been used, they should be stopped and the patient given testosterone. It can be administered either sub-lingually or intramuscularly. Twenty-five mgms. once or twice a week intramuscularly will usually control bleeding as well as any menopausal symptoms. The total dose for one month should not exceed 300 mgms., or masculinization may result. If the endometrium is atrophic in a postmenopausal patient with bleeding, no specific therapy is necessary. The curettage usually stops the bleeding.

### SUMMARY

In adolescence, the majority of bleeding is functional and the treatment should be expectant and supportive using thyroid, iron, vitamins, progesterone and curettage when necessary.

In the child-bearing period, functional bleeding must be differentiated from such lesions as carcinoma,

polyps, endometriosis, and chronic pelvic inflammatory disease. It can be treated with estrogens, progesterone, or a combination of these. Beyond the age of thirty-five if bleeding is recurrent our treatment becomes more radical and hysterectomy is then considered.

Postmenopausal bleeding should be considered as caused by malignancy until proved otherwise. Estrogens, though, cause bleeding in this group and must be kept in mind as a cause. This group of patients should always have curettage and if further hormonal therapy is needed, then androgens should be used.

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## The Management of Acute Hematogenous Osteomyelitis and Pyogenic Arthritis\*

By J. ALBERT KEY, M.D.

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Now that potent antibiotics are available this one-time dread disease which carried a mortality of approximately 25 per cent and then caused the development of chronic osteomyelitis in such a large percentage of the survivors that it was one of the most important causes of crippling, is becoming relatively rare. This is because it is now customary to administer sulfonamides, penicillin or some other powerful antibiotic to any patient who develops fever, general malaise and other evidence of an acute infection. As a result of this practice most cases of acute hematogenous osteomyelitis are aborted before the disease in the bone has developed to a point where it can be recognized even by a competent physician who is conscious of the disease and is looking for it. Not only has the number of cases been lessened, but the mortality has been reduced to about 1 per cent.

One may object that this practice of administering antibiotics to patients who are suspected of being in the early stage of an acute infection without waiting until the disease develops to a point where a diagnosis is possible is not scientific medicine and this is true; but it is

good practice and has saved many lives and much crippling, and for these reasons it is recommended.

Acute hematogenous osteomyelitis is primarily a disease of childhood and adolescence, but it may develop at any age. The early symptoms are those of an acute pyogenic infection: fever and general malaise, often ushered in by a chill. Soon, that is in a matter of hours or a few days, localizing symptoms of pain and disability in one extremity or at the site of the lesion develop. The early physical signs are localized tenderness and pain on movement. These are followed by local heat, redness, swelling and after an abscess is formed the swelling may be fluctuant if it is near enough to the surface.

The x-ray does not reveal evidence of the disease until sufficient time has elapsed to permit macroscopic absorption of living bone and/or the formation of new bone in sufficient amount and density to cast a shadow on the x-ray film. This usually requires from 10 to 14 days. It is thus evident that the x-ray changes occur relatively late in the disease and the x-ray is not to be regarded as an important aid in the early diagnosis of acute osteomyelitis. A very frequent mistake is for the physician to assume that the bone is not involved because it appears to be normal in the roentgenogram. It is to be emphasized that the bone may be saturated with pus and yet cast a normal shadow. Consequently a negative x-ray is no evidence that

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an acute disease is not present in the bone. On the other hand as the disease progresses and bone is destroyed and new bone is formed the x-ray furnishes valuable information concerning the progress and location of the disease.

Examination of the blood usually reveals an increase in the number of white blood cells. The leucocyte count is usually from 15,000 to 20,000 per cu. mm and the differential count shows a relative increase in the polymorphonuclear leucocytes with a shift to the left. As the disease progresses the red blood cells are destroyed so rapidly that the patient develops a secondary anemia. In severe infections which have not been effectively treated with antibiotics the offending organism may be cultured from the blood. In a fulminating infection the leucocyte count may be relatively low (1500 to 4000) indicating feeble resistance to the infection, or very high (30,000 to 50,000) and the blood culture may indicate a large number of bacteria in the circulating blood.

The treatment with sulfonamides or preferably penicillin, streptomycin, aureomycin or terramycin should be begun as soon as the presence of an acute febrile disease is suspected and as indicated above in this way many cases of acute hematogenous osteomyelitis will be aborted and the disease will not reach a stage where a definite diagnosis is possible. The drug may be given by mouth or intramuscularly as indicated and should be given in fairly large doses.

If the physician does not see the patient until the disease has progressed in the bone to a stage where a diagnosis is possible: local pain and disability with tenderness, swell-

ing, redness and increased heat; the drug should be given in relatively large doses. Also if possible such patients should be hospitalized in order that they may be under constant observation and given proper care.

**Antibiotic Therapy**—We now use the antibiotics in much larger doses than we did when they were first introduced and for an adult or adolescent with an acute osteomyelitis we routinely administer 100,000 units of penicillin intramuscularly every 3 hours. This is a dosage of 800,000 units of penicillin in 24 hours. To a child under 12 years of age we give one-half of the adult dose and to an infant under 2 years of age we give one-fourth the adult dose. In a very ill patient we may double the above dose of penicillin or in addition to the penicillin we may give the patient 1 gram of streptomycin twice a day. This is because recently it has been demonstrated that there is a synergistic effect when the two drugs are given together; the penicillin being mainly bacteriostatic while the streptomycin is bactericidal especially if the bacteria have been inhibited by penicillin.

In order to avoid the frequent intramuscular injections of penicillin this drug may now be obtained in a slowly absorable form so that one or two repository doses of 300,000 units each 24 hours will maintain an effective concentration of the drug in the blood. There are now available vials containing 300,000 units of crystalline procaine penicillin G which is absorbed slowly and 100,000 units of buffered crystalline sodium penicillin G which is absorbed rapidly and 1 gram of dihydrostreptomycin, all of which may be given in one 3 cc intramuscular

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injection. If this dose is repeated every 12 hours I would expect it to be effective in most cases of acute osteomyelitis. In a fulminating case, however, I would still prefer the 100,000 units every 3 hours augmented by 1 gram of streptomycin every 12 hours.

While giving the drug the urinary output should be watched as retention may lead to toxicity with a dosage tolerated by patients who have a normal urinary output. As we customarily force fluids in all patients with acute pyogenic infections in the bones or joints there is little danger of retention unless the kidney function is impaired.

Penicillin may cause allergic reactions and with the increase in use of this drug we are encountering such reactions more frequently as more people become sensitive to the drug. Usually these reactions take the form of urticaria or of a macular eruption and are more annoying than dangerous and can be controlled by an antihistaminic preparation. Occasionally they are so severe that administration of the drug must be discontinued. Usually streptomycin, aureomycin or terramycin can be substituted for the penicillin and will be tolerated by the patient.

If the patient is intolerant of any of the above the physician should administer sulfonamides in full doses as long as the infection is still active. There are now available preparations containing equal parts of sulfadiazine, sulfathiazole or sulfamethazine and sulfamerazine. These combinations of the 3 drugs are more effective, less dangerous and better tolerated than the sulfonamides which were available some years ago. An adult who is the victim of a severe infection is given an ini-

tial dose of 4 grams of the combined sulfonamides by mouth and this is followed by 1 gram every six hours which is continued until the fever subsides and then the dose is reduced and is discontinued about a week after the infection is judged no longer to be active.

Sulfonamides may also be used as adjuvenants in patients who are being treated with penicillin or some other antibiotic. While I know of no evidence that these drugs have a synergistic action it is quite possible that they may be found to be of considerable value, especially in patients who are not doing well on the antibiotic and where there is a definite need for some supplemental therapy.

If the streptomycin in full doses is continued for some time it may cause damage to the eighth nerve and such patients should be watched for tinnitus, dizziness or deafness and the drug stopped if any of these symptoms develop.

The antibiotic should be continued in full dosage until the fever subsides and then the dose may be halved or further reduced and continued until the disease is judged no longer to be active. If the patient develops signs of recurrence of the disease after the antibiotic has been discontinued the treatment should be resumed and the antibiotic given in full dosage.

**Treatment of the Local Disease—** In the past we believed that the infected focus in the bone should be drained as soon as the patient was in condition to stand the operation. Now we are prone to rely more upon antibiotic therapy and find that many patients recover completely without surgery and in others in whom an abscess develops this may

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heal spontaneously or may be aspirated and penicillin injected into the cavity, or it may be evacuated through a small so-called medical incision.

There are some cases which should be operated upon and the cortex of the bone opened over the infected area in order to permit free drainage. These are usually cases in which the antibiotic therapy was started relatively late and the disease had become well established in the bone and caused some necrosis; or in which the causative bacteria were unusually resistant to the antibiotic. Such cases do much better if the bone is operated upon and drained relatively early in the disease. It is true that they will almost always survive without operation, but the patient may be ill for a long time, the bone may be extensively destroyed, the adjacent joints stiffened and the patient severely crippled. The correct decision as to when to operate upon such a case and how extensive the operation should be or when to leave it alone and trust to antibiotic therapy, may test the judgement of a very wise and experienced surgeon.

Immobilization of the extremity in a large, hot wet dressing, a suitable splint or a plaster cast tends to relieve pain and aid the defense mechanisms of the body in localizing the infection and should be practiced in all except the very mild cases. The immobilization should be begun as early in the disease as practicable and continued until the activity of the disease has ceased. In cases with considerable destruction of bone the immobilization should be continued until some

repair has taken place because the granulation tissue may progressively erode the bone after the infection has subsided. In two of my patients pathological fractures occurred some weeks after penicillin had been discontinued and after the disease was believed to be arrested; and even after the fractures there was no evidence of activity of the infection in the bone.

Pain should also be relieved by suitable drugs in adequate dosage. The anemia, if present when the patient is first seen or if it develops while under treatment should be corrected by transfusion of whole blood. The bowels should be kept open and such a diet prescribed that the patient receives plenty of proteins, vitamins, and minerals as well as calories.

**Acute Pyogenic Arthritis**—What has been written here about acute osteomyelitis applies also to pyogenic arthritis except that if the patient is seen relatively early in the disease the joint may be aspirated and penicillin instilled into the joint and left there. If the disease has become well established in the joint, the joint is operated upon and any masses of coagulated fibrin encountered are removed even though they may be adherent to the synovial surface, the joint is thoroughly irrigated with hot (115° Farenheit) normal salt solution or penicillin solution and the wound is then closed and penicillin is instilled into the joint. The joint is immobilized as long as the infection is active and is then exercised and even manipulated under general anesthesia if necessary in an effort to restore a normal range of movement.

## Therapy for Hypertensive Patients with Preparation Containing Neothylline

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This communication is written mainly for the general practitioners of medicine. Hence, the authors will not delve into the intricate details by splitting hairs as to the differentiation between the malignant and essential forms of this highly prevalent disease. Suffice to say, the malignant type is basically the same as the essential form, but it is far more acute and severe, and it appears earlier in life. It runs a shorter course and mainly ends in uremia and renal failure, according to Aupperly (1).

Sodeman (2) believes that there is "much indirect evidence to incriminate nervous impulses." General practitioners have recognized, apparently, the influence of the emotional forces in the scope of hypertension, because they have employed depressants and sedatives for this condition for many years. Many current pharmacological preparations carry some form of a sedative for the treatment of this condition, although there is a growing sentiment that many forms of essential hypertension may be caused by renal or endocrine disorders (3) and, therefore, if discovered, these defects should be remedied.

The countless number of available preparations, which are advocated

for the treatment of hypertension, belies the efficacy of the modern treatment for this distressing malady. Many physicians, after trying the newer and highly publicized therapies, finally return to the use of the sedatives for the treatment of their hypertensives.

We have also run the gauntlet of the varied therapeutic agents which have been advocated for this disorder. We have repeatedly attended lectures, round table conferences, and we have discussed the problem with specialists. The outcome has been rather discouraging. And so we finally again prescribed the usual sedatives after we gave the newer medications what we regarded as adequate clinical trials.

Most general practitioners will gladly try any new medication which offers at least a ray of hope. But it is decidedly tiresome and boring to make repeated blood pressure determinations on returning patients with no registration of improvement. And by improvement, at least from the clinical viewpoint, we mean (1) improvement in the well-being and the general feeling of each patient (2) a definite and lasting reduction in both the systolic and the diastolic blood pressure readings of each patient.

We do not desire to bore our readers with fancy tables and graphs which might well attract their attention, even if such tables, in themselves did not mean much. Hence, we shall merely relate our findings which were obtained clinically with the use of certain medications which we shall now describe.

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The purpose of our series of clinical tests was to evaluate the efficacy of certain medications for the treatment of hypertension.

The control series of cases (35 patients) were treated for the period of two months with the following medication: (*Viritin*)

Each tablet contained:

mannitol hexanitrate	30 mg.
phenobarbital	15 mg.
rutin	20 mg.
veratrum viride	100 mg.

The daily dose consisted of one tablet administered four times daily.

The experimental series of cases (35 patients) were also treated for two months with *Viriphyl*:

phenobarbital	15 mg.
rutin	20 mg.
veratrum viride	100 mg.
neothylline	100 mg.

The daily dose was one tablet after each meal (three times daily).

We note that the control medication contained well known vasodilators and sedatives, while the experimental material contained the same medication, with the exception that the mannitol hexanitrate was deleted and neothylline was substituted.

The presence of neothylline was of decided interest to us. Neothylline is dihydroxypropyl theophylline. The usual derivatives of theophylline are quite poorly tolerated by some patients, so that the use of the drug has to be discontinued at times.

Maney, et al. (4) have shown the neothylline (dihydroxypropyl theophylline) contains a diuretic property. It is also a direct myocardial stimulant; it dilates both the coronary and the circulatory vessels; it dilates bronchiolar vessels of the lungs. But most important of all, it is of low toxicity when administered by mouth and even intravenously. And lastly, it is quite stable in the gastric and the intestinal fluids of the body. This cannot be said about the other theophylline preparations now in use clinically.

As to the Veratrum Viride used in the preparation employed in our studies, Maison and Stutzman\* have described a method for the assay of veratrum viride based on quantitating the hypotensive effects in anesthetized dogs. Not less than six dogs are used for each assay. A standard reference power is used. The percentage drop in mean arterial pressure produced by the reference standard is compared to percentage drop in mean arterial pressure produced by the unknown.

Percentage drop M.A.P. of unknown  
= % potency of the standard  
Percentage drop of M. A. P. by  
Standard

(M.A.P.—Mean Arterial Pressure)

Routine of assay unit on an unknown involves use of not less than

### TREATMENT OF HYPERTENSIVE PATIENTS

Control Group <i>Viritin</i>	Mean systolic	Mean diastolic reduction	Improvement retinal arteriospasm	Improve. of dyspnea	Improve. in hypertensive* encephalopathy	Nausea from Medication
35 cases	22 mm. Hg.	8 mm. Hg.	3 cases	5 cases	Moderate improvement	Frequent
Experimental Group <i>Viriphyl</i> 35 cases	34 mm. Hg.	14 mm. Hg.	7 cases	13 cases	Marked Improvement	Not Common

Length of treatment was two months for each case.

\*Hypertensive encephalopathy included the following symptoms (one or more): cerebral edema, delirium, blindness (transient), aphasias, headaches (of all types), convulsions, edema.

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six dogs, bracketing the unknown at selected dosage with two infusions of the standard reference powder at one microgram kg/ minute for 10 minutes.

The above dosage avoids vasodepressor effect due to cardiac showing.

Below in simplified chart form, are the results of our investigation.

### Conclusions

From the above table, it is obvious that the improvement in the experimental group of patients, under treatment with Viriphyll, was generally and highly adequate. The greatest blood pressure reduction was in the systolic recordings, although the diastolic phase also showed a good, adequate clinical response to therapy.

In our opinion, we feel quite certain that the general clinical improvement, as shown by the experimental group, was due to the

presence of neothylline. This was verified further, for we employed this drug alone on ten separate cases, and the clinical findings were very similar to those obtained with Viriphyll.

We offer our findings at this time so that other general practitioners can make their own independent observations. In this way we shall obtain ultimately a thorough clinical evaluation of the new and highly interesting drug, Neothylline.

\*Archives Internationales de Pharmacodynamie et de Thérapie 1951. LXXXV, No. 3-4, pp 357.

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## NOTES on MEDICAL STATISTICS

### FEVER

A survey of 357 patients and 1,761 temperature readings in diseases characterized by high fever revealed that only 4.3 percent of the temperatures were higher than 106F. (41.1 C.) There was no temperature above 107.8 F. (42 C.). 608 of the temperature readings were between 104 and 105 F. (40 to 40.6 C.). Less than 50 percent remained between 102 and 103 F. (38.9 and 39.4 C.). The author concludes that these temperatures are regulated on a "thermostat level" and that temperatures above 106 F. are due to a disorder of this temperature-regulating mechanism (hypothalamus, peripheral circulation, and sweat glands). (E. F. DuBois. Am. J. M. Sc. 217:361, Apr. 1949).—A review of 232 cases with various acute conditions in which the temperature reached 105.8 F. at least once showed a death rate of 56 percent; in 121 cases of acute fever of the same degree with no specific illness diagnosed, the mortality rate was 97 percent (Y. Akerren. Acta pediat. 31:1, 1943 and Nordisk Med. 25:608, March 1945).

## Diagnosis and Treatment of Leukorrheal Discharge

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Leukorrhea is probably the chief gynecological complaint which the general practitioner's female patients call upon him to relieve. Concomitant complaints may vary from a mild physical annoyance to the backache and headache, the distraught patient describes as "driving her crazy." The importance of a "normal" vaginal discharge should not be underestimated. Very often conditions which may be the forerunners of serious pelvic involvement, such as cancer, tuberculosis and the various granulomas of the genital organs, may have leukorrhea as the only symptom long before other signs such as bleeding and pain occur. In this paper we are concerned with the diagnosis, treatment and prevention of vaginal conditions, other than those mentioned above, wherein the primary symptom is abnormal vaginal discharge.

### *Normal Vaginal Biology*

The normal physiology of the vagina is maintained by certain endocrine balances of the individual. Testosterone and progesterone have some influence on the structural integrity of vaginal epithelium. Estrogen, however, has the greatest role in stimulating the proliferation of vaginal epithelium and the formation of glycogen. It influences the maintenance of physiologic pH values by the abundant formation of lactic acid from glycogen. Changes

in the structure of vaginal epithelium, in the content of glycogen and in the acidity of vaginal secretions occur in cycles not only at puberty and the menopause, but also because of the cyclic hormonal changes associated with various phases of the menstrual period. Normal vaginal secretion is scanty and it is just enough in amount to produce moistening of the vagina without soiling the clothing. However, it should be remembered that at certain times of the menstrual cycle, especially during the ovulatory period and just before cyclic bleeding begins, many women normally will notice an excess of secretion. It is flaky, grayish white, pearl colored and often transparent in appearance. It is distinctly acid with the pH ranging from 4.0 to 5.0 in most women. It contains the large motile, gram-positive Döderlein bacilli closely related to lactic acid bacilli as well as desquamated epithelium and various amounts of glycogen. Some pathogenic organisms are often observed in the vaginal secretions of women without their complaining of symptoms. It is probably that these extraneous organisms are kept in check by the low pH and abundant presence of Döderlein bacilli in the vaginal secretions.

In children absence of estrogenic stimulation limits the vaginal mucosa to a few epithelial layers. The pH of the vaginal secretions is neutral or alkaline and the flora is a mixture of staphylococci, nonhemolytic streptococci and coliform and diphtheroid bacilli. During the reproductive cycle the vaginal mucosa

is under the stimulating influence of estrogens. The epithelium is thick, multiple layered and rich in glycogen. The mucosa is strongly acid and the bacterial flora is homogeneous. This condition is particularly marked during the later months of pregnancy when the epithelium is under the influence of an overabundant supply of estrogens. The decrease of estrogenic activity, which occurs at the menopause, causes physiologic changes in the vaginal mucosa. The blood supply, glycogen and the nutrition of the epithelium cells are decreased. The pH rises to a neutral or alkaline level.

#### *Abnormal Vaginal*

##### *Discharge: Etiology*

Leukorrhea may be infectious or non-infectious in origin. The non-infectious mucous discharge due to hypersecretion of the cervical glands is different from the normal only in quantity. When of infectious origin leukorrhea is accompanied by inflammation of the vagina and/or cervix which, with the appearance of the discharge, often is typical of the primary pathogenic organisms involved. Active infection is usually associated with a rise in pH and the disappearance of Döderlein bacilli from the vaginal secretion. A reduction in glycogen and of the epithelial layers of the vaginal mucosa also occur. The state of health or cleanliness of the vagina is classified, from observation of vaginal smears, usually as follows:

Grade 1—Homogeneous flora composed of Döderlein bacilli pH 4.0 to 4.6.

Grade 2—Döderlein bacilli plus other organisms pH 4.6 to 5.6.

Grade 3—Organisms other than Döderlein bacilli pH 5.6 to 7.6.

The most frequent cause of the non-infectious type of leukorrhea is

the eversion or protusion of endocervical epithelium in the vagina beyond the external cervical os. Excessive mucous secretion of comparatively high pH may be observed in adolescence, primarily due to sexual stimulation; in pregnancy as a result of excessive estrogenic stimulation and in menopausal women treated with large doses of estrogens.

In leukorrhea of infectious origin the most commonly met pathogenic organisms are (1) trichomonas vaginalis (2) non-specific mixed bacteria (3) candida albicans (monilia). The relationship between vaginal activity, grade of smear and pathogenic organisms which can exist in the normal and pathologic ranges is illustrated in Figure 1. The graph also shows diagrammatically the variations in pH observed during the life cycle and the clinical conditions most frequently seen at various pH levels. While Trichomonas Vaginalis is ascribed as the specific organism involved in trichomonas infectious and Candida Albicans in monilia infections, the importance of associated secondary infections should not be overlooked. Non-specific symptomatic or asymptomatic infections very often predispose to eradication of Döderlein bacilli, reduction of acidity and rapid growth of existing trichomonas or monilia organisms which until then have been kept in check. So-called secondary infections too may be responsible for most of the distress complained of by patients.

In infectious leukorrhea in children the pathogenic organisms involved usually are gonococci or non-specific and the infection may be due to trauma from masturbation. The presence of foreign objects should always be suspected.

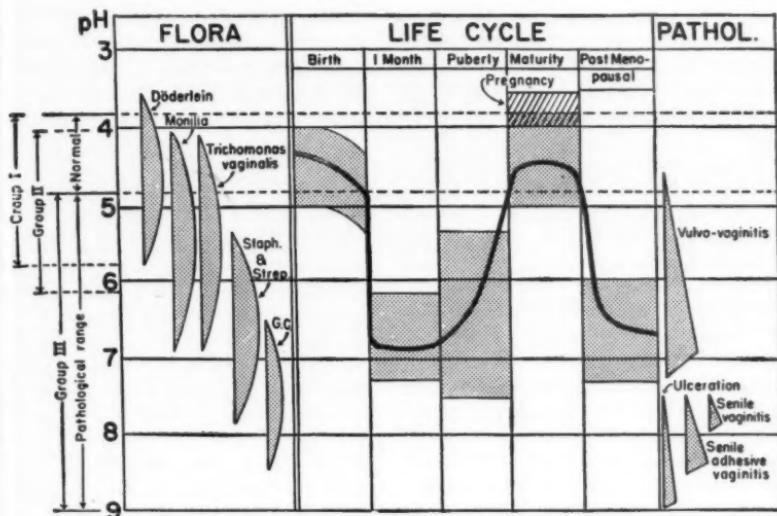


Figure 1

During the menarche trichomonas, non-specific and mycotic infections predominate. Here too one may find cervical conditions associated with congenital erosions, hypertrophic, infected glands and with interference with proper drainage. Foci of infection lodged deep in the cervix are associated with cervical erosions and chronic leukorrhea which are very difficult to treat medically. Lacerations and passive congestion eventually lead to chronic leukorrhea in women after childbirth. Lochia is a fertile menstrum for the growth of pathogenic organisms, which are present in all post-partum cases and reach their greatest abundance between the first and third weeks after delivery.

Infections due to non-specific and/or trichomonas organisms can be due to (a) Rectal contamination due

to improper hygiene (b) Contamination with infected urine droplets (c) Sharing use of bathtubs or such articles as douche tips with infected women (d) Sexual intercourse. Trichomonas vaginitis is rarely seen in virgins and is more frequent in the married than the unmarried. Infection is therefore ascribed by many as venereal in origin. (e) Masturbation. Also following digital examination by the physician who does not wash his hands properly in between patients.

Much has been said of the origin of recurrences in trichomonal vaginitis patients previously cleared of the infection. Some claim that clinical cures are only a temporary arrest while others take the problem as one of reinfection. It is conservatively estimated that trichomonas vaginalis is harbored in the vaginas of 1 out of 5 women. In only a small fraction of these does the infection

become active enough to cause mucosal changes, leukorrhea and physical distress. Since the organism is so widespread, it is foolhardy to expect a permanent cure of all such cases.

During pregnancy and in diabetes the over abundant supply of glycogen in the vaginal mucosa creates a fertile menstrum for the growth of *candida albicans*. It is estimated that 25% of all gravid women harbor the *candida albicans* organism in the vaginal secretions and that a fair proportion will develop mycosis.

Monilial organisms normally are found in about 3% of non-pregnant women examined gynecologically. In most cases the normal bacterial flora appear to prevent the flourishing of these organisms. The extensive and prolonged use of antibiotics however, alters the bacterial flora and encourages the abundant growth of monilia often enough to have elicited a warning by the Council on Pharmacy and Chemistry of the Journal of the American Medical Association, that physicians be cautioned about such a possibility by suitable statements on the label attached to packages of the newer antibiotics.

The decrease of estrogenic activity which occurs at the menopause causes physiologic changes in the vaginal mucosa. The blood supply, glycogen and the nutrition of the epithelial cells are decreased. The pH rises to a neutral or alkaline level. These changes diminish the resistance of the epithelium to infection even to organisms readily controlled during the childbearing period. The epithelium is easily subject to erosions and ulcerations and intense pruritus is a major complaint. Some women with marked senile vaginitis have no discomfort and very little discharge. Others

complain of irritation, leukorrhea, occasional bleeding, pruritis vulvae, frequency and burning on urination. Deficiency of Vitamin A is also said to be a cause of senile vaginitis.

#### *Diagnosis of Leukorrhea*

The typical objective evidence, obtained by a careful pelvic examination, very often helps in the diagnosis and choice of treatment. The importance of a thorough scrutiny into pertinent history cannot be too strongly emphasized. In infectious cases every effort should be made to ascertain the cause of infection. If sexual origin is suspected the male partner should be questioned and examined. If the patient is in the habit of douching or shares a bathtub with other women these avenues of infection should be kept in mind. All patients are examined for external appearance of the vulva and a careful bimanual palpation of the entire pelvic area is instituted. The para-urethral ducts (Skene's glands) are stripped for evidence of discharge. The vaginal and cervical mucosa are carefully palpated for lesions as well as for indurated areas covered by apparently healthy epithelium. A speculum is inserted so as to expose the vaginal and cervical mucosa. The appearance of these as well as the associated discharge often indicates the type of organism involved. One should look for evidence of obstruction, of mucous discharge and of poorly draining pockets and localized areas of unhealthy tissue (particularly pathologic hypertrophy of the endocervical longitudinal ridges), denoting the condition of the endo-cervix.

The type of discharge should be carefully observed. A greenish yellow purulent discharge from the endocervix and from Skene's ducts, associated with a marked redness

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of the cervical and vaginal mucosa is indicative of a possible gonococci infection. The discharge associated with trichomonal infections is a profuse, often bubbly or frothy, mucopurulent leukorrhea with an excessively offensive odor which is often characteristic in these cases. The patient often complains of "scalding" of the external genitalia by the discharge. A punctate "strawberry" mottling of the external cervix and adjacent vaginal wall, which seldom extends above the level of the external os, is usually associated with recent infections. In recurrent infections there is usually a mucous discharge from the cervix and in these cases a search should be made for hidden foci of infection, particularly in the urinary tract, the paraurethral ducts and the minor vestibular glands.

In cases of non-specific infection the vagina becomes swollen, red and tender. The patient complains of burning, itching and vaginal discharge. Leukorrhea of non-specific origin may be similar to that observed in trichomonas infestations so that it is difficult to differentiate between the two.

In infections due to mycotic organisms the discharge is thick, usually scanty, is often cheesy in appearance and assumes a yeast-like odor. The most important symptom is pruritis which oftentimes is quite intense, and is accompanied by reddening of the lower vagina and labia.

While the exigencies of time and personnel in a busy practitioner's office often preclude adequate laboratory determinations of the organism involved, final diagnosis can only be ascertained with the aid of microscopic examinations, cultures and smears. We find the microscopic study of the fresh smear to be the

simplest and most easily performed diagnostic technic in a physician's office. For this purpose the cotton applicator or a smooth wood applicator is swabbed around the cervical and vaginal mucosa and is placed in half a cubic centimeter of warm normal saline. The cotton applicator is smeared on a plain glass slide without cover or a hanging drop microscopic examination of the saline suspension is made under low and high power. The smear makes possible the differentiation of the pathogenic organisms involved. The motile flagellated trichomonal protozoa are easily differentiated from the budding yeast cells of monilial infestation. A true non-specific infection would present a mixture of various bacteria without the presence of *Candida Albicans* or trichomonal organisms. While *Trichomonas Vaginalis* is described as a specific organism involved in trichomonal infections, and *Candida Albicans* in monilia infections, the importance of associated secondary infections should not be overlooked, since these may be responsible for most of the distress complained of by patients.

When the result of microscopic examination of wet smears is in doubt, use of the Gram stain may aid in the diagnosis, and necessary cultures should be made. Whenever urinary symptoms are present urine should be obtained by catheter and cultures made to determine presence of urinary involvement.

In cases of persistent erosions and indurated areas of the cervix as well as when the cytology of cervical and vaginal smears are suspect, malignancy should be ruled out by the taking of biopsies and their microscopic examination.

The pH of the vaginal and cervical mucosa should be determined—with a glass electrode if possible—with nitrazine paper if the glass electrode is not available.

Complete blood counts should be taken in cases of non-infective types of leukorrhea, to rule out blood dyscrasia, in which excessive "whites" may be the first symptom present.

#### *Treatment of Vaginitis—Trichomonial*

The medical treatment of vaginitis is accomplished with a large number of various local applications in the form of powders, tablets, ointments and jellies. In the greatest number of patients seeking gynecological help *Trichomonas vaginalis* appears to be the primary offending organism. Most of the products offered the physician are therefore aimed at this infection. This great variety of medicaments has prompted the Council on Pharmacy and Chemistry of the American Medical Association to set forth the therapeutic objective in treatment of trichomoniasis as "thoroughness and persistence with the simplest and least messy procedures".

While most clinical studies of various of the newer types of medication usually "cure" or arrest trichomonial infection in about 85% of the cases observed, our present knowledge of the physiology of vaginal mucosa in health and when infected leads the author to restate that the ideal vaginal anti-infective should be:

1. As easy as possible to apply by the physician in his office and by the patient at home. The author's preference is Westhiazole jelly, dispensed with a single dose disposable applicator, as described in a previous paper.

2. Buffered effectively so to promote the reestablishment of the physiologically correct acidity and growth of Döderlein's bacilli consistent with a healthy vagina. The evidence indicates that a water soluble jelly which can maintain a vaginal pH below 4.5 would be an adequate anti-trichomonial agent. However, an efficient anti-septic should also be included so as to quickly control secondary infections present in most cases.

3. Antibacterial so as to rapidly control persistent infections especially in cervicitis requiring electro-surgery.

4. Of such consistency as to assure intimate and prolonged contact with vaginal and cervical mucosa. Present day water dispersible jellies are an improvement over powders and tablets. However, the ideal base should approach in physical characteristics (adhesiveness, consistency, wetting power) the vaginal-cervical secretions.

5. Nonirritating and nontoxic even when used over a period of time. The fear of sensitization of vaginal mucosa with sulfathiazole has been overemphasized. The literature describing widespread vaginal usage of the sulfonamides is reassuringly lacking of reports of sensitization.

All of the properly acid buffered sulfonamide jellies available today as anti-trichomonial agents probably work with about the same effectiveness—which is as much as can be said for most other medication for a similar purpose. While these are timed at *trichomonas vaginalis*, they clear nonspecific infections efficiently. Recently the newer antibiotics—penicillin, aureomycin, terramycin, chloromycetin and bacitracin have been suggested as

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vaginal anti-infectives. Their efficiency in clearing nonspecific and trichomonal infections is encouraging. However, the replacement of these infections with monilial vaginitis seems to occur with sufficient frequency to suggest caution. A recent report particularly describes frequent stimulation of abundant growth of *Candida Albicans*, the primary organism involved in vaginal mycosis.

Regardless of the method used, persistence in treatment for at least three weeks beyond the subjective and objective indications of relief, especially during the menstrual period, is the best assurance of success in the clearing of vaginitis and the prevention of recurrences. The author's routine treatment for vaginitis diagnosed as due to *Trichomonas* or nonspecific organisms is as follows: The patient is given sufficient information about the infection, its possible source, its expected course and the necessity for her cooperation for optimum results. She is instructed not to douche (douching is unnecessary and the only thing that it accomplishes is to remove medication from the vaginal and cervical mucosa—where it is needed most) and to refrain from intercourse. She is given a prescription for Westhiazol and instructed in the use of the single dose disposable applicator technique. She is asked to apply this medication once a day, at bedtime, every day—*including the entire menstrual period*.

The patient is seen at the office once weekly to determine progress of treatment. The patient is considered cured only after the following criteria have been met: complete relief from symptoms, return to normal pH, negative smears taken at intervals during the three months

following termination of treatment. These intervals are: at time of menses, immediately following menses, and at the midperiod.

Various non-staining preparations have been offered for the treatment of vaginal Moniliasis. None of them have approached the effectiveness of gentian violet especially during the last trimester of pregnancy, when these infections are most stubborn and distressing. However, the painting of the vaginal and cervical mucosa with gentian violet solutions is necessarily limited to the physician's office and is exasperatingly messy and inconvenient. It is also of some hazard to the pregnancy when resorted to near term. The insufflation of various powders (as suggested by some) is, of course, to be condemned for its dangers and has indeed caused accidents including deaths.

Recently gentian violet therapy for mycotic infections has been freed of most of the objectionable features associated with the use of this dye. It is supplied as a stable jelly (Gentia-Jel) packaged in single dose disposable plastic applicators which permit its application without much of the mess and staining usually encountered. It also makes possible the prescribing of the medication for home use by the patient.

The author's treatment consists in the forbidding of douching and intercourse and the prescribing of one dose of Gentia-Jel a day, preferably applied at bedtime. Symptoms usually subside after a few applications but applications are continued for at least ten days following complete symptomatic relief, and the obtaining of negative smears. An occasional patient is sensitive to gentian violet, applications producing local irritation. In these, treatment should be discontinued.

### *Vaginitis in Children*

In vaginitis in children the treatment of choice (after removal of foreign substances in the vagina, if any) is the temporary stimulation of the vaginal mucosa with local estrogenic medication — tablet inserts, suppositories or jellies. If necessary, supportive oral antibiotic medication should be resorted to. Diabetes should be ruled out and the child influenced towards more hygienic habits and away from masturbation if these are contributory.

### *Senile Vaginitis*

In the treatment of senile vaginitis improvement of the general health is of primary importance. Careful gross and microscopic examination should be made to rule out the possibility of malignancies. Local estrogenic therapy designed to increase the resistance of vaginal mucosa should be utilized. In persistent infections of non-malignant nature, short courses of Westhiazole jelly afford prompt symptomatic relief.

### *Medical Treatment in Cervicitis*

Acute cervicitis responds to the same treatment as is used for vaginitis due to the same organisms. Electrosurgery must be used in the treatment of chronic cervicitis for the purpose of insuring adequate drainage, removing diseased tissue so that healthy tissue may grow in its place. Subsequent cervical dilation should be done to prevent stenosis.

Before electrosurgery is attempted the field should be cleared of infection as much as possible with the

application of a vaginal anti-infective for about two weeks before this operation. Here again the author prefers Westhiazole jelly. The same daily applications should be continued after electrosurgery to control possible post-surgical infection, speed healing and reduce the incidence of annoying symptoms usually following such procedures.

### *Summary*

Leukorrhea is a symptom of various vaginal and cervical conditions of infectious and/or noninfectious origin. When patients complain of leukorrhea the first consideration is to determine the cause. Once this is determined the appropriate treatment is quite easy and successful in most cases.

The medical treatment of vaginitis should be accomplished with "thoroughness and persistence with the simplest and least messy procedures."

The medication used should combat primary as well as secondary infections, and should encourage the return of mucosal integrity, physiological pH and healthy Doderlein flora.

The physician should always remember the primary objectives:

- Avoidance of reinfection;
- Maintenance of sanitation;
- Preservation of adequate uterine drainage and rest of infected tissues.

Adequate medical treatment with vaginal anti-infectives before and after electrosurgery should always be utilized in the treatment of chronic cervicitis.

## DIAGNOSTIC SUGGESTIONS

### *Hypoventilation*

People unconsciously hold their breath when they expect to hear bad news, when they expect to be punished, when they expect to hear loud noise and when they make some unusual physical effort. Hypoventilation is seen in instances where the person has to earn a living doing what he does not enjoy doing. Acute hypoventilation causes symptoms because expiration is incomplete with a resultant accumulation of increasing amounts of air in the lung; the symptoms may resemble cardiac dysfunction. Chronic hyperventilation rarely causes dramatic symptoms or signs. Both acute and chronic hypoventilation may trigger off the hyperventilation syndrome. The physician can recognize hypoventilation by inspection and ameliorate it by teaching the patient to breathe properly. (Wm. Kaufman, Mississippi Valley Med. J. 5:133 Sept. 1951)

### *Coronary Sclerosis—*

#### *Peptic Ulcer*

Author contends that in chronic peptic ulcer patients there may be a higher incidence of coronary atherosclerosis and coronary thrombosis. The composition of the frequently used Sippy diet might increase this risk; therefore author cautions against continuous intake of whole cream and milk and suggests to feed rather protein supplements. He states that myocardial infarction was found in 23 per cent of 116 patients who died from chronic peptic ulcer. This percentage was considerably higher than the incidence of myocardial infarction associated with other chronic diseases such as cancer (6%), cirrhosis of the liver due to alcoholism (5%) and toxic goiter (4%).

### *Dacryoadenitis*

The diagnosis of infection of the lacrimal gland is based on the detection of a lump at the outer part of the upper eyelid originating from under the supraorbital margin. The area is tender in the beginning. General symptoms are marked at the onset: malaise and anorexia. Ptosis is a common sign; the same holds true for chemosis of the temporal bulbar conjunctiva. Some authors describe a seasonal incidence. As to the differential diagnosis, orbital cellulitis, osteitis of the frontal bone and acute infection of the Meibimina glands should be borne in mind. (P. Wilson. British Med. J. 4716:1183, May 26, 1951)

### *Basal Metabolic Rate*

#### *Determination*

Author contends that a patient's metabolic rate may be obtained by using the following formula; Systolic blood pressure minus diastolic blood pressure equals pulse pressure plus pulse rate per minute minus common denominator (111) equals metabolic rate.  $SP - DP = PP + PR - 111 = BMR$  (Th. H. Cloyd. South. Med. & Surg. 3:270, August 1951)

### *Gynecomastia*

Pallardon Classifies gynecomastia in 7 groups: 1) gynecomastia of the newborn; 2) gynecomastia in pseudohermaphroditism; 3) gynecomastia of endocrine etiology; 4) gynecomastia of castrates and in genital insufficiency; 5) gynecomastia associated with hepatic insufficiency and cirrhosis of the liver; 6) gynecomastia due to mechanical irritation; 7) gynecomastia senilis. (A. Fernandez-Moscoso Bellod. Archivos del Cuerpo Municipal de Beneficencia y Sanidad, Valencia, Spain, 3: 252, August 1950).

## DIAGNOSTIC SUGGESTIONS

### *Lupus Erythematosus*

"Epilepsy has been the most important, and by far the most frequent, central nervous system manifestation in patients with proved systemic lupus erythematosus . . . Seven of 28 patients with positive plasma L. E. reactions have had convulsions during the course of the disease. The incidence of this symptom is significantly greater in this series than among cases accumulated from the literature prior to the introduction of the plasma L.E. test. Two patients have had convulsions for years prior to the appearance of recognizable symptoms of lupus erythematosus. This suggests that epilepsy, when accompanied by rheumatoid arthritis or leukopenia, may constitute a prodromal symptom of systemic lupus erythematosus. EEGs frequently demonstrate an organic type of dysrhythmia in patients with or without convulsions in systemic lupus erythematosus. . . . Routine pathologic studies have failed to reveal specific brain alterations in lupus erythematosus. (P. W. Russell; J. R. Haserick and E. M. Zuckerman. Arch. Int. Med. 1:78, July 1951)

### *Jugular Foramen Syndrome*

"The jugular foramen syndrome is based upon the anatomic fact that the ninth, tenth, and eleventh cranial nerves leave the skull via the jugular foramen. A lesion in or near the jugular foramen which involves these three adjacent nerves characterizes the syndrome. Sometimes, in addition to involvement of the ninth, tenth and eleventh cranial nerves which exit through the jugular foramen, the twelfth or hypoglossal nerve which lies nearby may be involved also; then the term "Jackson's Syndrome" is applied to

the clinical condition. These nerves may be involved by an inflammatory lesion, or they may be compressed by a tumor." Author reports on a case with a cholesteatomatous tumor; the patient had pains in the back of his neck for 17 years; for the past 1½ years there was also tenderness to touch in the back of the neck. 7 years ago he had noted a sudden stiffness of the neck so that he could not turn it to the right. At that time a diagnosis of torticollis had been made and the left sternocleidomastoid muscle has been divided without benefit. (J. G. Love. Proc. Staff Meet., Mayo Clin. 13: 225, June 20, 1951).

### *Infantile Cortical Hyperostosis*

A rare disease in children; since the first report by Caffey in 1945, 37 cases have been reported. Clinical picture presents a moon faced infant from 4 weeks to 12 months of age with fever, hyperirritability, anemia, and upset feeding habits; leukocytosis, increased sedimentation rate and elevated alkaline phosphates are also present. The moon faced appearance is due to brawny edema of the mandibular region and enlargement of the mandible. X-ray appearance is characteristic and gives the best basis for early diagnosis. Sub-periosteal proliferation of the mandible, ribs, clavicle, scapulae, and lung bones are typical. In the differential diagnosis scurvy osteomyelitis, syphilitic periostitis and vitamin A poisoning have to be considered. The disease generally runs a benign course. C. A. Racely; J. B. Bilderback and W. Y. Burton. Infantile Cortical Hyperostosis with involvement of the Ilium. Northwest Med. 6:418 June, 1951. 12 references.

## DIAGNOSTIC SUGGESTIONS

### Common Cold

The designation "a cold" undoubtedly comes from the age-old recognition that overcooling of the body whether due to exposure to inclement weather conditions, a simple draught, or wet feet often precipitates an upper respiratory condition. This condition consists primarily of occlusion of the nasal passages and nasal discharge. Author refers to infectious cold in cases of microbial invasion of the nose as well as in cases of a 2 day or 3 day virus infection which conveys immunity and which sometimes goes on to secondary infection (sinusitis). By allergic cold is meant a tissue reaction in the nose of a noninflammatory type; yet there are mixed allergic and infectious colds. Observations indicate that a specific hypersensitivity and imbalance of the autonomic nervous system is fundamental in the allergic type of cold. Histamine or histamine-like substances contribute to its symptomatology. Reduced functioning of sympathetic response with interaction of parasympathetic response seems to be essential. (E. P. Fowler. *Ann. Allergy* 3:209, May-June, 1951).

### Secondary Inertia of Labor

Dihydroergotamine methanesulfonate (DHE-45), intravenously in one milligram doses, is effective in producing rapid dilatation of the cervix. The average time of labor was 4 hours and 14 minutes in 100 multiparous patients; the average time for complete dilatation was 14 minutes. The drug has proved to be safe and does not produce side effects. (M. J. Baskin and F. W. Nealock. *Rocky Mountain Med. J.* 51:1851, July 1951).

### Anemia—Heart Involvement

Author stresses that severe anemia may cause a specific pathologic type of organic heart disease as result of prolonged myocardial anoxia. Even lesser degrees of anemia may cause post-exertion symptoms which may appear to be of intrinsic cardiac origin. These symptoms result from an increased volume and velocity of the circulation. The symptoms together with murmurs, gallop sound, and abnormalities in the EKG may lead to an erroneous diagnosis of intrinsic heart disease; the differential diagnosis may be difficult, particularly in sickle cell anemia. The unfavorable influence of anemia in the presence of intrinsic cardiovascular disease with impaired heart function, angina pectoris or intermittent claudication should be clearly implied from a recognition of the effects of anemia upon the otherwise normal heart. (C. F. Kay. *American Practitioner and Dig. of Treatment* 7: 587, July 1951).

### Alcoholism

The initial blood chloride levels in 19 cases who displayed craving for liquor averaged 345 mg. per 100 cc.; this is below normal as the normal values are in the average 435 to 500 mg. per 100 cc. Clinically, the craving for liquor in prolonged alcoholic episodes could be promptly counteracted by increase of salt in the diet or by giving isotonic sodium chloride solution intravenously. When a dose of 2 Gm. of sodium chloride was given in 30 cc. of water orally, followed by a glass of water, diminution of trembling, disappearance of craving and sleep ensued. (W. D. Silkworth and M. Texon. *Quart. Stud. Alcohol* 11:381, September 1950).

## DIAGNOSTIC SUGGESTIONS

### **Laughter Fits**

Excessive laughing (and crying) in cases of organic brain disease occurs, 1) when the function of both pyramidal tracts is impaired and, 2) when the laughing center — probably in or near the hypothalamus — is excited as, for instance, by irregular discharge of epilepsy. The author reports on four cases in which attacks of laughter were due to organic brain disease. One patient, age 25, had an aneurysm of the basilar artery indenting the floor of the third ventricular; the second, 25, had a lesion of the hypothalamus; the third, 23, had a subarachnoid hemorrhage associated with hemorrhage into the third ventrical; the fourth, 18, had multiple sclerosis with a lesion at the top of the brain stem. All patients had sudden attacks of laughing for which there was no cause and no appropriate emotion. The attacks of laughter were a sign of bad prognosis; they were followed by two deaths, by one severe hemiplegia and by one repetition of hemorrhage. (J. P. Martin, *Brain*, 73:543, December, 1950)

### **Letterer-Siwe's Disease**

This disease is a nonlipoid reticulosclerosis. The onset is always acute, with generalized reactions. The main features are : a) A fair degree of enlargement of the liver and spleen. b) A haemorrhagic tendency which manifests itself as petechiae or purpura. c) Enlarged lymph glands. d) localized tumours over bones may be noted, and cyst formations in bones have occurred. e) The leukocyte count is normal, and there is a progressive secondary anemia. There are nonlipoid-containing macrophages in the spleen and other affected organs. f) The disease is seen only in infants and ends fatally. (R. P. Aronson *Lancet*, Apr. 1951)

### **Mesentric Vascular Occlusion**

The condition usually occurs in elderly persons with some degree of arteriosclerosis. Blood dyscrasias, polycythemia vera, intra-abdominal infections, trauma, incarcerated hernia or an ulcerating carcinoma may be the causative factors of a thrombosis. Embolism may occur in elderly individuals with auricular fibrillation and cardiac failure. It also may follow recent coronary enfarction or any type of vegetative endocarditis. Arterial occlusion rapidly changes to gangrene while in venous occlusion the process is much slower. Venous Thrombosis has a slow onset with mild to moderate colicky pain and tenderness of the lower abdomen. Low temperature with marked leukocytosis are present. In arterial occlusion the onset is sudden with violent pain. At times

### **Chromate Workers—**

#### **Lung Cancer**

The lung carcinoma death rate among chromate plant workers is approximately 15 times that of the general population. This occupational group, representing 1 per cent of the labor force of the county under investigation accounted for 10.8 percent of the total deaths of respiratory system carcinomas in the county over a 12-year observation period. The geometric mean latent period of pulmonary carcinoma in chromate workers was 10.6 years which is about 5 years less than the average latent period reported previously in German and American publications. Insoluble chromium compounds (chromate dust, chromic oxides, etc.) may play a causal role (T. F. Mannsoo and W. E. Hueper *Industr. Med. & Surg.* 8:358, August 1951)

## THERAPEUTIC SUGGESTIONS

### **Allergic Rhinitis**

Cocaine in an 0.25 to 0.5 per cent solution in a pravine-antistine base has been proved to be satisfactory during the discomfort of the hay fever season. In acutely congested nose of seasonal vasomotor rhinitis topical application of trichloracetic acid to the lower turbinates when nose previously is anesthetized, has been recommended. As a nonspecific remedy: Roniacol is mentioned. Relief of severe cases of seasonal hay fever may be accomplished by ephedrine capsules in combination with barbiturates and aminophyllin. Patients who react unpleasantly to ephedrine may use propadrine hydrochloride (% to  $\frac{3}{4}$  gr.) capsules instead. (W. T. Wenner. Minnesota Med. 8:745, Aug. 1951)

### **Genito-Urinary Tuberculosis**

Acute miliary infections in most cases resist treatment. The chronic forms involve the kidneys (proliferative or necrotic forms), the bladder (hemorrhagic or ulcerated inflammation), the prostate gland, the epididymis and the vase deferens. Use of antibiotics aureomycin may have a surprising effect, especially in bladder involvement. Tuberculous peritonitis and epididymitis may be influenced endocrinologically by administration of testosterone (implanted triiod pellets). Dysuric symptoms may be corrected by Pyridium or Caprokol enemas, or by administration of which antibiotics and antispasmodic aperients. The author also recommends various 5 to 5 per cent solutions of phenol, liquid cod-liver oil, and similar preparations. When acid fast bacilli remain in the urine and when the existing lesions do not regress, surgical intervention is indicated. (W. P. Herbst. Dis. of the Chest, 19:537, 1951).

### **Seasickness**

Avomine which is chemically N-(2-dimethylamino-n-propyl) phethiazine 8-chlorotheophyllinate (i.e. 8-chlorotheophyllinate of promethazine) has been used in the prevention and treatment of seasickness. The tablet was placed on the tip of the tongue and rapidly swallowed with a drink of water. In cases of already present seasickness the patient was advised to remain in bed for one or two hours after administration of the first tablet. Otherwise there were no restrictions of normal activity and eating. The results have been encouraging. (John Harper. Lancet, 1:1141, May 26, 1951) T.S.

### **Radioactive Iodine in the Treatment of Toxic Goiter**

Author stresses that radioactive iodine "strikingly ameliorates the symptoms of hyperthyroidism whether associated with hyperplastic or nodular goiters, although less effectively in the latter. With nodular goiter the dosage must be two to three times that for Grave's disease." At present it is still too soon to predict whether the results will be permanent and also whether the administration of radioactive iodine carries a danger of carcinogenesis. Author states that until now about 600 patients have been treated with I-131 in this country. In a series, referred to by the author, of 288 patients the results of the treatment with an average dose of 7 microcuries of I-131 were good in 83%, fair in 9.7% and failures in 5.5%. The average treatment time was 4.9 months. Myxedema as a sequel occurred in 8.5 per cent of the cases. (H. L. Foss and A. F. Cooper. Pennsylv. Med. J., 54:430, May 1951)

## THERAPEUTIC SUGGESTIONS

### ***Inoperable Cancer of the Prostate Gland***

Treatment of inoperable cases is palliative. Pain is nearly always controlled with diethylstilbestrol in doses of 0.15 to 0.40 mg. daily. Ethinyl estradiol in doses of 0.15 to 2.5 mg. may be tried if diethylstilbestrol causes side reactions such as painful enlargement of the breasts, nausea and cutaneous eruptions. If pain still returns, bilateral orchietomy is suggested. When pain still persists, x-ray treatment is often helpful. Also 1% solution of novocain injected into the sacral canal or 1cc. of 95% alcohol into the subarachnoid space at 4th interspace have proved to relieve pain. (M. J. McMartin. *Nebraska State Med. J.* 9:287, September 1951.)

### ***Femoral Vein Ligation in Fracture of the Hip***

100 patients with recent fractures of the neck of the femur, in the period from December 1946 to September 1947, were studied as to the incidence of pulmonary embolism. 50 of these patients were subjected to ligation of the superficial femoral vein, bilaterally, while 50 were not. The age of this group averaged 75 years. The mortality was 58 percent. It was conspicuous that the mortality rate was practically identical for both groups. "In this series of 100 cases of fracture of the neck of the femur, femoral vein ligation had no effect upon changing the general mortality rate." . . . "the facts remain that the one case of pure, fatal pulmonary embolism occurred in a patient who had been ligated, that one ligated patient showed major pulmonary embolism as compared with only nonligated, and that 7 ligated individuals exhibited minor but definite pulmonary emboli compared with similar lesions

in 4 nonligated patients." Authors conclude that—while this series is not large enough to offer results of statistical significance—their experience indicates that femoral vein ligation "offers no security against the development of pulmonary embolism in an unselected and controlled series of patients suffering from fracture of the hip." (Wm. H. Erb and F. Schumann. *Surgery*, 29: 819, June 1951.)

### ***Cortison Indications and Contraindications in Old Age***

a) Indications: diseases of the joints and bursae; thrombophlebitis; allergic asthma; chronic skin disorders; preparation of poor operative risk for surgery; acute inflammatory diseases of the eye. b) Contraindications: severe hypertension; congestive heart failure; renal insufficiency; peptic ulcer; osteoporosis; emotional instability. (G. W. Thorn. *Second Symposium: The Clinical Problems of Advancing Years*. March 15, 1951. Smith, Kline & French Laboratories. Philadelphia 1951, p. 12.)

### ***Congestive Heart Failure***

Authors state that mercurial diuretics result in sodium and water excretion by depressing tubular reabsorption. Plasma volume and venous pressure decrease. Aminophyllin has the same effect by increasing globular filtration and renal plasma flow. Digitalis-intravenously—effects fall in venous pressure, the onset of diuresis is slower, but sodium and water excretion are augmented. Authors recommend as first drug of choice aminophyllin; then, digitalis, and last, thiomerin. (R. G. Herrmann; J. A. Ortiz; G. IV H. C. Herrmann and H. P. Reveley. *New Orleans Med. & Surg. J.*, 2:43, August 1951.)

## THERAPEUTIC SUGGESTIONS

### *Pyelitis in Pregnancy*

The majority of cases react favorably to bed rest and sufficient fluid intake. When signs and symptoms persist, the causative organism should be determined and the proper antibiotics or sulfonamides should be administered. If this management fails, an indwelling ureteral catheter should be inserted; ureter and kidney pelvis should be irrigated and then a 2% solution of silver nitrate should be instilled (H. L. Kretschmer. Illinois Med. J. 51:623, March 1951.)

### *Insulin*

Author presents an evaluation of NPH-50 insulin on 17 patients with moderately severe to severe diabetes mellitus without complications. He stresses that NPH-50 insulin is particularly valuable in the management of severe or so-called "unstable" cases of diabetes. It is superior to protamine zinc insulin in the control of patients who need more than 30 units daily. (A. E. Groff; H. T. Englehardt and J. M. Skelton. Texas J. of Med. 8:547, August 1951).

### *Lacrimal Duct Obstruction*

In infants: irrigation of tear sac weekly or daily finger expression (by the mother). If this is not successful, dilation of punctum and canaliculus and irrigation with normal saline solution should be resorted to. If an obstruction is found, probing will be necessary. In adults: probing rarely suffices. Operation is the treatment of choice: dacryocystectomy or dacryocystorhinostomy (lacrimal sac anastomosed with nasal mucous membrane—Stokes). (A. C. Noe. J. of the Iowa State Med. Soc. 61:86, March 1951.)

### *Tetanus Antitoxin*

"Of 100 patients given tetanus antitoxin, 56 were given an antihistaminic drug in oral doses of 50 mg. daily for ten days following injection. The other 44 were not given antihistamine. The incidence of serum reaction in the former group was 3.6 per cent; in the latter, 20.4 per cent." The antihistamine administered was Pyribenzamine. (A. Waxman and H. Goshelin. California Med. 2:93, August 1951).

### *Aureomycin*

Authors report on 103 patients who were given large doses of aureomycin in treatment of serious infections; 14 of them received both oral and intravenous aureomycin therapy. Among these 14 patients, 7 showed clinical evidences of liver dysfunction. Necropsy examinations on 5 and a biopsy specimen from one of these patients showed pathologic changes in the liver cells. Two subjects were given aureomycin intravenously; liver function tests revealed diminution of liver function. The liver changes appeared to be reversible when recognized early and when aureomycin was promptly discontinued. The authors recommend that aureomycin should not be given intravenously in large doses. When aureomycin is administered orally not more than 1 Gm. daily should be given intravenously in addition. When oral therapy is not employed, 2 Gm. of aureomycin intravenously a day would seem to be the maximum dose. For children a maximum intravenous dose of 40 mg. per Kg. of body weight is suggested. (M. H. Lepper; Ch. K. Wolfe; H. J. Zimmermann; E. R. Caldwell, Jr.; H. W. Spies and H. F. Dowling. Arch. Int. Med. 3:271, September 1951.)

### Books on Neurology

The fourth volume of the series "The Postnatal Development of the Human Cerebral Cortex"<sup>1</sup> is a painstaking study on the cortex of the six-month infant. The histological interpretations are meticulous and enlightening and the plates which are frequently explained by drawings from the preparations excellent. A unique but consistent therapeutic method to correct disorders of voice and speech is offered by two European investigators<sup>2</sup>. The book is worthwhile reading for every physician interested in these problems. The late and unforgettable Paul Schilder's book<sup>3</sup> on studies in the psychopathological aspects of cerebral neuropathology is a collection of lectures and papers beginning with the year 1928. Schilder whose profound knowledge of pathology of the nervous system was integrated by an equal experience in pathopsychology and psychonalysis was probably the first one who gave the loose term of psychosomatic medicine a meaning which was founded

on the confluent view of brain pathology, functional disorders and psychological disturbances. The clear style and lucid presentation makes this book an oasis in the erudite chaos on publications on psychomatic medicine. The revised *Atlas*<sup>4</sup> of cross section anatomy of the brain is an instructive means to familiarize oneself with brain anatomy. No text accompanies the drawings which in their plain and informative impressiveness are self-explanatory.

#### REFERENCES

1. The Postnatal Development of the Human Cerebral Cortex. Vol. IV. The Cortex of The Six-Month Infant. By J. Leroy Conel. Harvard University Press. 1951. 190 pages and 108 plates. Cloth. \$12.50
2. The Chewing Approach in Speech and Voice Therapy. Ed. By Deso A. Weiss and Helen H. Bebe. S. Karger, Basel—New York. 1951. 118 pages. Cloth. \$3
3. Brain and Personality. By Paul Schilder, M.D. Second Printing. International Universities Press, Inc. New York. 1951. 135 pages. Cloth. \$2.50
4. Atlas of Cross Section Anatomy of the Brain. Guide to the Study of the Morphology and Fiber Tracts of the Human Brain. Fifth Section of Emil Villiger's Brain and Spinal Cord. 14th Ed. Revised by E. Ludwig. Further Revised by A. T. Rasmussen. The Blakiston Company, Philadelphia. 1951. 62 pages. Cloth. \$5

### Books on Eye, Ear, Nose, Throat Diseases

Strabismus is a challenge not only to the ophthalmologist but also to the general practitioner who very frequently is confronted with the management of squint. A symposium<sup>1</sup> on all problems involved is, therefore, a very welcome contribution to the literature on this subject. Anatomy and physiology is presented in the first 8 chapters. Etiology and diagnosis comprise the next 7 chapters. The remainder of the book is dedicated to treatment methods. The chapter by Frank D. Costenbader on "Factors in the Cure of Squint" will prove to be very useful in general practice. A common

sense book for the layman which will help the busy practitioner in making sinus troubles understandable to his patient is Dr. Brodnitz' well balanced and judiciously restricted book<sup>2</sup> on sinus conditions, colds, and allergic reactions. To give this explanation into the hand of the patient will make him cooperative and amenable to the frequently prolonged and tiring treatment.

#### REFERENCES

1. Strabismus, Ophthalmic Symposium. Ed. By James H. Allen, M.D. The C. V. Mosby Company. St. Louis. 1950. 467 pages. Cloth. \$10.50
2. Your Sinus Troubles and Treatments. By Friedrich S. Brodnitz, M.D. Abelard Press, New York, 1950. 241 pages. Cloth. \$2.75

## Three Books on Tuberculosis

Tuberculosis is still a major peril in this country in spite of the substantial decrease both in morbidity and mortality rates. The third edition of the comprehensive work by J. Arthur Myers<sup>1</sup> outlines all aspects of diagnosis, treatment and prevention of tuberculosis in children and adults and gives a very instructive exposition of all problems involved. The 32nd report of the Henry Phipps Institute<sup>2</sup> is a collection of papers published by the staff members of the Institute on many important questions of research, statistics, diagnosis and therapy; a worth-while reading for every physician concerned with the progress in tuberculosis. A book coming from England<sup>3</sup> reflects the personal attitude of a tuberculosis specialist to

the conception of tuberculosis. It is a quite unorthodox and "private study," deviating essentially from recognized views in oversimplifying "conceptions" ("the chief chemical bodies formed in the tuberculous process are methyl in nature") and in recommending on 13 pages a therapeutic approach whose value will yet have to be proved.

1. *Tuberculosis Among Children and Adults.* Third Edition. By J. Arthur Myers, M.D. Charles C. Thomas, Publisher, Springfield, Illinois. 1951. 894 pages. Cloth. \$12.50.
2. *University of Pennsylvania. Thirty Second Report of the Henry Phipps Institute for the Study and the Prevention of Tuberculosis.* 1947, 1948, 1949. Henry Phipps Institute. Philadelphia. 1950. 342 pages. Cloth.
3. *The Tuberculous Process. A Conception and Therapy. A Private Study.* By Alfred Leitch, M. B. Bristol. John Wright Sons. 1949. 175 pages. Cloth. \$3.

## Books on Gynecology

Fertility<sup>1</sup> in marriage is often a question which is brought before the general practitioner. Fertility is not just a gynecological or urological problem. This has been well recognized and evaluated by the authors of this booklet. It will interest every physician to learn how social and psychological factors effect fertility. This study is well founded statistically.

Two small brochures<sup>2</sup> deal with the determination of the time of conception and the determination of infertile days. These booklets serve essentially the purpose of physiological birth control. An outstanding work, of high concern both to the gynecologist and the pediatrician is Smith's well known description of

the physiology of the newborn infant<sup>3</sup>. This work offers a wealth of well presented and judiciously selected information on the important subject of the transition from intrauterine to extrauterine life. In order to gain an understanding of care and treatment of the newborn, this book is an indispensable aid.

### REFERENCES

1. *Social and Psychological Factors Affecting Fertility.* By Clyde V. Kiser and P. K. Whelpton. The Milbank Memorial Fund, New York, 1951. 122 pages. Paper.
2. *The Fertile and Infertile Days of Women and Their Definite Calculation.* By Hermann Knaus, M.D. Rhythm Consultation Bureau, Division of Herbert E. Budek Company, Inc. Hackensack, N.Y. 50 pages, paper—same author. *About Necessity of Keeping a Record of the Onset of Menstruation in the Form of A Calendar.* Same Publisher. 1951. Together \$3.
3. *The Physiology of the Newborn Infant. Second Edition.* By Clement A. Smith, M.D. Charles C. Thomas, Publisher. Springfield, Ill. 1951. 348 pages. Cloth. \$7.50.

## Books on Psychiatry

The seventh edition of the textbook by Streckér-Ebaugh-Ewalt<sup>1</sup> displays the same clarity of approach as the previous editions. The section of child psychiatry has been contributed by Leo Kanner in expert form. The general practitioner will be interested particularly in the chapters on psychoneuroses which are dealt with in a sound eclectic way, the chapter on psychosomatic medicine and that on 'support' psychotherapy which is especially suited for use in general practice. While Wachtel's book on psychosomatic medicine<sup>2</sup> is perhaps not just another book on this abundantly discussed topic, this reviewer cannot agree with the subtitle "A new and Practical Philosophy of the Soul in the Art of Healing." The author introduces the concept of 'soul' in medical terminology and contends that psychosomatic medicine is founded on biological and spiritual experience. Essentially this is an attempt to integrate religion and medicine. While this is a very laudable endeavor, it cannot be said that the

author has made his approach a convincing one — Sex offenses are an increasing problem in every community and, thus, for the general practitioner. The Governor of the State of Michigan has established a Study Commission to scrutinize the implications of sex crime<sup>3</sup> statistically, psychologically and therapeutically. The presentation is a sober and consistent evaluation of facts; the bibliography is extensive. A similarly valuable book is the study<sup>4</sup> which deals in a concise and conclusive way with the prevention of juvenile delinquency. All aspects of this difficult question are treated in a comprehensive and methodical exposition.

1. Practical Clinical Psychiatry. By Edward A. Streckér, M.D.; Frank G. Ebaugh, M.D. and Jack R. Ewalt, M.D. Seventh Edition. The Blakiston Company, Philadelphia, 1951. 505 pages. Cloth. \$7.
2. The Idea of Psychosomatic Medicine. By Curt S. Wachtel, M.D. Froben Press, Inc. New York, 1951. 239 pages. Cloth. \$5.
3. Report of the Governor's Study Commission on the Deviated Criminal Sex Offender. State of Michigan. Hon. G. Mennen Williams, Governor, 1951. 245 pages. Paper.
4. An Experiment in the Prevention of Delinquency. The Cambridge-Somerville Youth Study. By Edwin Powers and Helen Witmer. Columbia University Press, New York, 1951. 649 pages. Cloth. \$6.

### NOTES on MEDICAL STATISTICS

#### OBESITY

25 to 30 percent of adult persons in U. S. are obese. The percentage may reach as high as 60 percent in women of the 50 to 70 year age group. The death rates of persons over 45 years of age who are 10 to 90 pounds overweight are, respectively, 8 percent to 116 percent greater than those in persons of normal weight. The incidence of diabetes mellitus is 2½ times as great and that of cardiovascular-renal diseases 1½ times as great as in those of average weight. (R. W. Vilter and C. Thompson. *Publ. Health Rep.* 20:630, May 18, 1951).

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### **Myciguent Ointment. Nonirritating antibiotic preparation containing 5 mg. per sm. of finely divided neomycin sulfate in a bland base.**

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### **Myciguent ophthalmic Ointment. Same composition as above.**

Indications: superficial eye infections, conjunctivitis, blepharitis, sty.

### **Neomycin sulfate. 0.5 Gm. Sterile powder.**

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All 4 above mentioned preparations are released by: The Upjohn Company, Kalamazoo, Michigan.

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Indications: coughs due to colds; coughs associated with allergic reactions; upper respiratory infections.

Abbott Laboratories, North Chicago, Ill.

### **Decholin with Belladonna.**

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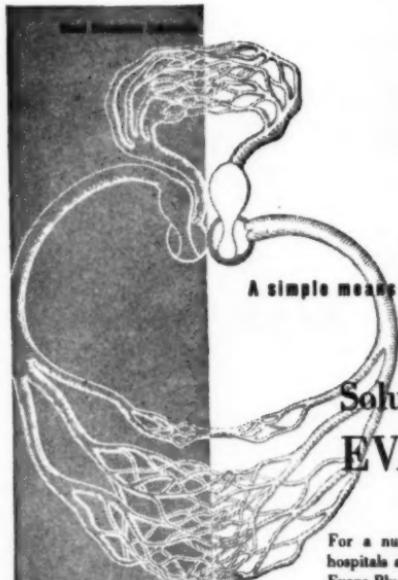
Indication: bronchial asthma.

Thos. Leeming & Co. New York, New York.

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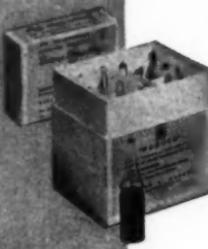
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